FLORIDA DEPARTMENT of

management SERVICES

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Chad Poppell, Secretary

Florida 911 Coordinators
Spring 2015 Meeting

Federal Communication Commission Actions

Daytona Beach, Fla.

May 6, 2015

FCC Actions

- Report to Congress (911 Fees)
- Text-to-911
- Smartphone “911 APPS” Workshop
- Non-Service-Initialized (NSI) Phones
- Task Force on Optimal PSAP Architecture
- 911 System Resilience
- Wireless Location Accuracy

Sixth Annual Report to Congress

- State-level funding for 911 (including E911 and NG-911)(calendar year 2013)
- Collection and distribution of 911 and E911 Fees and charges
  - Six states and one territory reported diversions
  - No Florida diversion or transfer of E911 revenue reported
- Florida Collections: $107,884,715
- Report can be found on the FCC's website at https://www.fcc.gov/encyclopedia/9-1-1-and-e9-1-1-services.
- Appendix D: State Responses

Text-to-911

Readiness and Certification Registry

- The Text-to-911 Registry is available for inspection on the commission's webpage: http://www.fcc.gov/encyclopedia/psap-text-911-readiness-and-certification
- Text providers must provide text-to-911 service within six months of receiving a valid PSAP request
  - PSAP's registration in the FCC registry database begins the provider's text-to-911 obligations
  - Written notification also initiates the provider's text-to-911 obligations
- FCC requests registration, it is not a requirement. Not registering in the FCC registry database does not stop PSAPs from obtaining text-to-911 service.

Text-to-911

- **PSAP Text-to-911 Readiness & Certification Form**
- Complete the Form, providing:
  - Submission Date
  - Contact Information
  - PSAP Facility Information including
    - FCC PSAP ID number
    - Name of facility
    - Physical address
    - County of operation
  - PSAP Coordination Contact Information
  - Method to Receive Texts
  - **Appropriate authority approval**
  - **Certification (technically ready to receive text-to-911)**
- Email form to: **T911PSAPREGISTRY@fcc.gov**

Text-to-911

Third Further Notice of Proposed Rulemaking (NPRM)

- Comments requested on future enhancements to text-to-911, including:
  - Precise location for 911 texts;
  - Text-to-911 while roaming; and
  - Extending 911 to future texting services.
- Commission reviewing filed comments

FCC may also look at connectivity cost to NG-911 systems, similar to connectivity at selective router.

Smartphone “911 APPS” Workshop

- May 8, 2015
  - How existing apps are assisting in the provision of 911 service
  - How 911 network architecture affects requirements for app design and delivery
  - Steps needed to encourage further development and integration of 911 apps (location-based apps)

Non-Service-Initialized (NSI) Phones

NPRM Adopted: April 1, 2015

- 1996 Commission rules require Commercial Mobile Radio Services (CMRS) providers to transmit 911 calls originating from customers with contracts or calls originating from NSI devices (with no valid service contract) to PSAPs.
- They are seeking comments on:
  - Does the requirement serve an important public safety objective?
    - Call validation methods no longer used;
    - Inability to identify the caller creates considerable difficulty for PSAPs; or
    - Causes a waste of limited public safety resources.
- Propose to sunset the NSI component of the rule after a six-month transition period that will allow for public outreach and education.
- Also seek comment on alternative approaches to addressing the issue of fraudulent calls from NSI devices. Is blocking a viable alternative?

NSI 911 NPRM

- In the NPRM, the FCC listed that, in certain circumstances, a service-initialized device may appear to be an NSI device to a CMRS provider's network.
- They seek comments on how these would be affected:
  - When a phone has not completed registration at the time a 9-1-1 call is placed;
  - When calls are placed from areas of weak or no signal for one carrier that receives a signal from another carrier;
  - When calls are made from a handset that selects the strongest signal, which may not be the subscriber's carrier;
  - For calls placed by consumers roaming in areas with or without automatic roaming agreements;
  - For calls placed on foreign phones; or
  - Because of normal network events, system reboots, and other circumstances that can occur during mobile switching center (MSC) to MSC handoffs, for several seconds after the phone is powered on, and as the phone recovers from loss of service in a tunnel.
- Also they observed that when pre-paid phones have run out of minutes, they become *de facto* NSI devices until the user pays for more pre-paid minutes.

Task Force on Optimal PSAP Architecture (TFOPA)

Meetings: Jan. 26 , 2015 and April 29, 2015

Working Group 3 Report to Task Force: July 2015

Working Group 1 and 2 Reports to Task Force: Sept. 2015

TFOPA Charter ends: Dec. 2, 2016

Working Groups

1. Addressing cybersecurity issues for PSAP-specific recommendation practices based on the National Institute of Standards and Technology (NIST) Cybersecurity Framework and other sources, resources and tools, workforce development and training.

TFOPA Working Groups

Working Groups

2. Improvement recommendation and best practices on PSAP efficiency, performance, and operations functionality and cost-effectiveness, through consolidated NG911 network architecture design and operation. Reviewing optimal NG911 system and network configurations, associate cost projections and transition periods; annual maintenance cost projections and improvements for people with disabilities access.
3. Develop recommendations on optimal resource allocation and budgeting for PSAPs to expedite the transition to NG911, identifying sustainable funding models. Recommendations on optimizing state 911 fees usage and E911 funds are used for their intended purpose.

Florida 911 Coordinators
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911 System Resilience

Daytona Beach, Fla.

May 6, 2015

FCC Communications Outage Reporting

Notification, initial and final communications outage reports - filed by providers Network Outage Reporting System (NORS)

- Wireline, Wireless, Interconnected VoIP, Satellite and Cable
  - FCC electronic notification within 120 minutes (VoIP 240 minutes) discovering of outage (≥30 minutes) (any facilities that they own, operate, lease, or otherwise utilize)
- IXC or LEC tandem facilities outage of at least 30 minute duration
- Signaling System 7 (SS7) outage of at least 30 minutes

Title 47: Telecommunication, Part 4 - Disruptions to Communications

FCC - 911 Special Facility Outage

Outage potentially affects a **911 special facility** when any of the below occur:

- **Loss of communications to PSAP(s)** potentially affects at least 900,000 user-minutes* and no reroute for all end users was available and the outage lasts 30 minutes or more
- Loss of 911 call processing capabilities in one or more E-911 tandems/selective routers for at least 30 minutes
- One or more end-office or MSC switches or host/remote clusters is isolated from 911 service for at least 30 minutes and potentially affects at least 900,000 user-minutes*
- Loss of ANI/ALI and/or a failure of location determination equipment, including Phase II equipment, for at least 30 minutes and potentially affecting at least 900,000 user-minutes*

*Duration of an outage (min.) multiplied by the potentially affected end users

FCC Outage Notification

Service Providers must notify the designated PSAP official for communication outages, and convey all available useful information for mitigating the effects of the outage.

- 72 hours after discovering the outage, the provider submits FCC an Initial Communications Outage Report.
- 30 days after discovering the outage, the provider submits a FCC Final Communications Outage Report.

FCC - Covered 911 Service Providers

- Provides 911, E911, or NG911 capabilities such as call routing, automatic location information (ALI), automatic number identification (ANI), or the functional equivalent of those capabilities, directly to a PSAP and/or,
- Operates one or more central offices that directly serve a PSAP. If it hosts a selective router or ALI/ANI database, provides equivalent NG911 capabilities, or is the last service-provider facility through which a 911 trunk or administrative line passes before connecting to a PSAP.
- Does not include:
  - PSAP or governmental authority to the extent that it provides 911 capabilities; or
  - Offers the capability to originate 911 calls where another service provider delivers those calls and associated number or location information to the appropriate PSAP.

PSAP Outage Notification

Covered 911 Service Providers must notify (by telephone or other electronic means) **within 30 minutes** of **outage discovery** (that potentially affects a PSAP) the designated official and convey:

- All available useful information to mitigating the effects of the outage.
- A **follow-up name, telephone number, and email address** for additional updates from service provider.

- Communicate additional material information as it becomes available, but no later than **two hours** after the initial contact. Information includes:
  - Nature of the outage';
  - Its best-known cause, the geographic scope of the outage;
  - Estimated time for repairs; and
  - Any other information that may be useful to the management of the affected facility.

Effective Nov. 4, 2014

Resiliency, Redundancy and Reliability

- Covered 911 Service Providers must analyze their 911 and E911 networks and/or systems and provide a detailed report to the commission on the redundancy, resiliency, and reliability of those networks and/or systems:
  - Critical 911 circuit diversity
  - Central office backup power
  - Diverse network monitoring
- Initial certification due Oct. 15, 2015
- Annual certifications

Title 47: Telecommunication, Part 12

PSAP Outage Reporting

- PSAPs wishing to provide information on service outages and related issues can email the FCC at psapreport@fcc.gov.
- Include:
  - Contact information;
  - A description of the nature of the outage; and
  - A description of any assistance requested.
- PSAPs may contact the 24/7 FCC's Operations Center at 202-418-1122

FCC Recommendations

Maintaining a Reliable End-to-End 911 System

recommends that the commission, state governments and 911 industry participants take the following steps to preserve the reliability and integrity of the 911 system throughout this transition and beyond:

- Develop and Implement NG911 Transition Best Practices
- Intergovernmental and Stakeholder Information Sharing
- Situational Awareness
- FCC Exercise of Enforcement Powers
- Contractual Relationship Monitoring

FCC - 911 Reliability and Resiliency

- 911 Governance and Accountability Improving 911 Reliability.
- NPRM adopted Nov. 21, 2014
- Legacy circuit-switched PSTN central office switch failures affect local area customers.
- FCC noted large scale risks to 911 service reliability based on recent IP system outages.
- Outage due to technical reasons, not related to weather.

FCC Improving 911 Reliability NPRM

Proposes governance framework to:

- Reduce the risk of large-scale 911 outages.
- Mitigate their scope and impact.
- Cover additional entities and network reliability practices.
- Require public notification for major changes in multi-state 911 networks and services.
- Commission approval for discontinuance of existing 911 services.
- Certify new entity 911 technical and operational capability for reliable service.

“Sunny Day” 911 Outages

- April 9, 2014, an Englewood, Co., 911 call-routing facility stopped directing emergency calls to 81 PSAPs in seven states.
- Software (coding error) issue with a loss of 911 service (11 million possible affected, 477,000 people in Florida) (up to six hours) (6,600 calls affected). Issue was in a single data center that routes 911 calls, it affected three in Florida. A software call limit reached its maximum allowable limit and stopped making trunk assignments. Traffic switchover to Florida redundant facility occurred six hours after the outage. Alarm detection and management issues were noted. FCC has fined:
  - Verizon $3.4 million, failure to notify police and fire departments
  - CenturyLink $16 million
  - Intrado $1.4 million
- April 2014 Multistate 911 Outage: Cause and Impact, Report and Recommendations

Public Safety Docket No. 14-72, PSHSB Case File Nos. 14-CCR-0001-0007

“Sunny Day” 911 Outages

FCC reported additional 2014 outages

- A two-hour nationwide wireless carrier 911 outage affecting more than 40 million people.
- In Hawaii, there were nine statewide 911 failures totaling 20 hours that affected 1.4 million people.
- In Vermont, there was a 40-minute statewide emergency 911 system outage.
  - Double network equipment failure.
  - During restoration, another network error caused temporarily network failure.

Additional 911 Outage Issues

- Sub-contracted 911 services can lead to sub-contractor's network and architecture decisions.
- Sub-contracted 911 services can lead to the 911 vendor being unable to restore the system directly.
- Vendors sub-contracts can cause difficulties obtaining outage information.
- Contracting 911 service functions to multiple vendors can provide communication, accountability, and coordination issues between the various subcontractors.
- Contracting 911 service functions to one vendor can also provide communication and coordination issues between different organizational sections and system specialists.

Additional 911 Outage Issues

- Active redundancy does not exist in all systems and networks.
- Active redundancy can develop timing and communication issues that can cause system failures.
- System software and partial failures have occurred and the system may not be able to recognize that a problem exists and automatic failover may not occur.
- Review backup plans, they may work but they may be frustrating.
  - Account for time to implement spare or backup systems.
  - Test failover equipment and procedures.
  - Verify alternate routing capabilities including tandem and switch routing.

Situational Awareness

Situational awareness is extremely important for all parties involved in the system restoration during any outage. It is key to root cause analysis and timely restoration.

- **First Priority: Assure that 911 calls are being answered!**
- **First Goal: Reestablish 911 call delivery!**

Recommend that you receive a written root cause analysis (RCA) or a reason for outage (RFO) for any system failure. Corrective and preventive measures should be implemented and also be reviewed and included in your outage report.

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Wireless Location Accuracy

Daytona Beach, Fla.

May 6, 2015

FCC Wireless Outdoor Location Accuracy

- Network-based technologies
- 100 meters for 67 percent of calls
  - Jan. 18, 2014, carriers shall comply with this standard in 70 percent of counties or PSAP service areas. These counties or PSAP service areas must cover at least 80 percent of the population covered by the carrier across its entire network. Compliance will be measured on a per-county or per-PSAP basis using, at the carrier's election, either:

    (1) Network-based accuracy data, or

    (2) Blended reporting
  - Jan. 18, 2016, carriers shall comply with this standard in 100 percent of counties or PSAP service areas covered by the carrier.

FCC Wireless Outdoor Location Accuracy

- Network-based technologies
- 300 meters for 90 percent of calls
  - Jan. 18, 2014, carriers shall comply with this standard in 60 percent of counties or PSAP service areas. These counties or PSAP service areas must cover at least 70 percent of the population covered by the carrier across its entire network.
  - Jan. 18, 2016, carriers shall comply in 70 percent of counties or PSAP service areas. These counties or PSAP service areas must cover at least 80 percent of the population covered by the carrier across its entire network.
  - Jan. 18, 2019, carriers shall comply in 85 percent of counties or PSAP service areas.

FCC Wireless Outdoor Location Accuracy

- Handset-based technologies:
  - 50 meters for 67 percent of calls.
- Jan. 18, 2013, on a per-county or per-PSAP basis:
  - 50 meters for 67 percent of calls; and
  - 150 meters for 80 percent of calls.
- Jan. 18, 2019, on a per-county or per-PSAP basis.
  - 50 meters for 67 percent of calls; and
  - 150 meters for 90 percent of calls.
- Carrier may exclude up to 15 percent of counties or PSAP service areas from the 150 meter requirement based upon heavy forestation that limits handset-based technology accuracy in those counties or PSAP service areas.

FCC Time to First Location Fix

Latency: Outdoor Locations

- Maximum latency period of 30 seconds
- Measured from 911 initiation to the time the location fix appears at the location information center
- Location accuracy compliance measuring
  - CMRS provider may elect not to include 911 calls lasting less than 30 seconds for measuring compliance.
  - Indoor call location accuracy compliance deferred pending further indoor technology developments.

FCC Wireless Indoor Location Accuracy

Horizontal location

- Nationwide CMRS providers shall provide
  - Dispatch location; or
  - Latitude/Longitude x/y location within 50 meters.

Timeframes and percentages of all wireless 911 calls, measured:

- Within two years: 40 percent
- Within three years: 50 percent
- Within five years: 70 percent
- Within six years: 80 percent

Effective date: rule adoption

FCC Wireless Indoor Location Accuracy

Horizontal location

Dispatchable location:

- Street address of the calling party, plus
  - Validation and possible corroboration with other location information prior to delivery.
- Suite, apartment or similar information to adequately identify the location.

National Emergency Address Database (NEAD). A database that utilizes location identifier (Media Access Control (MAC) Address) of a Wi-Fi access point address information to identify a dispatchable location for nearby wireless devices within the CMRS provider's coverage footprint.

Effective date: rule adoption

FCC Wireless Indoor Location Accuracy

Vertical location

CMRS providers shall provide

- Within three years:
  - Uncompensated barometric data available to PSAPs from capable handsets
  - Nationwide CMRS providers shall develop one or more z-axis accuracy metrics validated by test bed process
- Within six years: In the top 25 Cellular Market Areas (CMA)s, including
  - #8. Miami-Fort Lauderdale-Pompano Beach, Fla.
  - #19. Tampa-St. Petersburg-Clearwater, Fla.
  - Nationwide CMRS providers shall deploy either
  - (1) dispatchable location, or
    - (NEAD populated with sufficient dispatchable location reference points to equal 25 percent of the CMA population.)
  - (2) z-axis technology
    - (deploy z-axis technology to cover 80 percent of the CMA population.)
- Within eight years: It is expanded to the top 50 CMAs
  - #26. Orlando-Kissimmee-Sanford, Fla.
  - #40. Jacksonville, Fla.

Effective date: rule adoption

FCC Provision of Live 911 Call Data

- 18 months, nationwide wireless providers
  - Begin reporting live 911 data (six test cities aggregated live 911 call data) (San Francisco, Chicago, Atlanta, Denver, Philadelphia, and Manhattan) and surrounding geographic areas
  - Submit initial implementation plan for meeting indoor requirements at three year and six year benchmarks
  - NEAD Privacy and security plan
- Three years, all wireless providers must submit a progress report on the implementation of their initial plan and assessment of any dispatchable location deployment efforts.
- Six years, deployment across wireless provider network.

FCC Provision of Live 911 Call Data

- Wireless service providers are required to record information on all live 911 calls including:
  - Method used to provide the 911 call location fix
  - Confidence and uncertainty data

- PSAP needs to request the information for it to be provided
  - Retained for a period of two years

FCC Confidence and Uncertainty Data

- Outdoor and Indoor locations
  - Latitude/Longitude x/y location, confidence and uncertainty data on a per-call basis upon PSAP request
    - The caller's location with a uniform confidence level of 90 percent
    - The radius in meters from the reported position at that same confidence level
  - All LECs, CLECs, E911 network owners, and emergency service providers responsible for transporting data, must enable the transmission of confidence and uncertainty data provided by CMRS providers to the requesting PSAP
  - Within three years, *Indoor Horizontal location standards*: dispatchable location, or x/y location within 50 meters
  - Within six years, *Indoor Horizontal location standards*: dispatchable location, or x/y location within 50 meters
  - PSAP is capable of receiving and utilizing the requested data and has requested the services and there is a cost recovery mechanism

Department of Homeland Security (DHS)

Office of Emergency Communications (OEC)

- Training on Next Generation 911 (NG911) systems is being offered (in Gainesville and Ft. Myers)
- OEC is currently developing documents:
  - Cyber Risk Primer for NG911 Systems – Overview of NG911 security, operability, and resiliency threats and vulnerabilities
  - Cyber Risk Mitigation Strategies for NG911 Systems – available risk mitigation options analysis
  - Cyber Risk Analysis Methodology for NG911 Systems – analytical tool to analyze and prioritize network security, operability, and resiliency risks